From: POULSEN Mike
To: Eric Blischke/R10/USEPA/US@EPA
Cc: MCCLINCY Matt; ANDERSON Jim M
Subject: RE: DEQ Hot Spot Questions
Date: 02/18/2010 03:59 PM

Eric -

Your questions are actually a bit more complicated than you might realize.

The definition of a hot spot refers to individual carcinogens and noncarcinogens. A carcinogen is defined in rule as a substance. "Substance" is not defined in rule. It does not necessarily correspond to an individual chemical. Ecology had similar ambiguity in their rules. A couple of years ago, after a lawsuit, they revised their rules to be very explicit that for dioxins, PCBs, and cPAHs, you sum the risk, and then apply the acceptable risk level. DEQ uses a different approach. We apply our acceptable risk level for individual carcinogens to individual dioxin congeners. For PCBs, if you have congener data, we apply the acceptable risk level for individual carcinogens to individual PCB congeners. However, if you have only total PCB data (Aroclors), then we apply the acceptable risk level for individual carcinogens to the total concentration, with the assumption that the risk could be driven by a single congener. We have consistently applied these approaches for the last ten years.

Defining hot spots for noncarcinogenic effects of dioxins and PCBs has not been an important issue until now. Until recently, we did not have an RfD for dioxins, and cancer risks always drove cleanup at PCB sites. But if we add the breastfeeding pathway, we know that the concentration resulting in an acceptable noncancer risk will be the same concentration that is acceptable for cancer risks. Yet as you know, the definition of high concentration hot spot is different for carcinogens and noncarcinogens. So, how do we apply our hot spot definition? It does not necessarily follow from our handling of carcinogenic effects. First, RfDs are based on exposure to Aroclors, not individual congeners. It may not be appropriate to apply the PCB RfD to individual congeners. Second, we have separate acceptable risk levels for individual carcinogens (1 x 10-6) and multiple carcinogens (1 x 10-5), but for noncarcinogens, the acceptable hazard quotient for individual noncarcinogens and the acceptable hazard index for multiple noncarcinogens is the same (1). So for noncarcinogens, there is essentially no difference in how we evaluate the acceptability of risk from one chemical or multiple chemicals that act in a similar manner. I do not know if this will influence whether we view PCBs as a single substance. DEQ management has not addressed the issue of hot spots for noncarcinogens such as PCBs. From a technical perspective, I believe the toxes would view PCBs as a single substance.

Regarding hilltopping, Matt says that the approach used at the Catellus site was used only once, and we no longer will allow that type of evaluation. Since the Catellus project, DEQ has consistently established potential hot spots based on concentrations at individual sample locations.

- Mike

-----Original Message-----
From: Blischke.Eric@epamail.epa.gov
[mailto:Blischke.Eric@epamail.epa.gov]
Sent: Wednesday, February 17, 2010 4:00 PM
To: POULSEN Mike
Cc: MCCLINCY Matt; ANDERSON Jim M
Subject: DEQ Hot Spot Questions

At our risk management meeting with the LWG this afternoon, the LWG asked some questions about the identification of hot spots.

We clarified that PCBs are viewed as mixtures and that the hot spot threshold would be based on 100x the acceptable risk level for individual chemicals (10-6) - i.e., individual congeners. Are hot spots calculated at the 100x the acceptable risk level for multiple chemicals (10-5) for total PCBs? Based on my reading of the hot spot definition, it seems that hot spots are established for individual chemicals only (congeners) and not mixtures (total PCBs).

For non-cancer risk, I assume that the hot spot threshold would be based on 10 x the acceptable risk level for individual congeners and not total PCBs.

The other question that came up had to do with point by point estimates vs. hill topping. We stated in our direction to the LWG on hot spots that the determination should be on a point by point basis. The LWG stated that they felt DEQ rules allowed for using a hilltop value. I believe this came up on the Catellus Site some years ago and that DEQ allowed hill topping even though it was inconsistent with the intent of the statute.

Mike, can you please respond to these questions and add any additional clarifying information you think is necessary.

Thanks, Eric